Amendment to the drawings:

Please delete current Figure 1 and replace it with the Figure 1 shown on the drawing Replacement Sheet filed herewith.

REMARKS

This is in response to the Office Action of September 30, 2009. The preamble of claim 1 is amended pursuant to comments by the Examiner on page 4 of the Office Action. Claim 1 is also amended to provide antecedent basis for "the treatment device" of claim 10. Claims 3 and 9-11 are amended to remove the reference to step (b) – or to point (ii) in claim 11 – as optional. Consequently, both the method claims and the kit claims define a procedure of, first, providing a sampler device in a paper- or board-making process line to enable any microorganisms present to form a biofilm on the surface of the sampler, then treating the surface of the sampler with the biofilm thereon in a solution of a test anti-biofilm agent, then contacting the surface of the sampler with the biofilm thereon with growth medium in order to detect the presence or absence of biofilm-forming microorganisms adhered on the walls of the recession, thereby demonstrating the efficacy or lack of efficacy of the test anti-biofilm agent. New claims 15 and 16 are broken out of claim 3. No new matter is introduced by this Amendment. Claims 1-13, 15, and 16 are now pending in the present application.

THE INVENTION. The underlying idea of the present invention is to find a suitable anti-biofilm agent in a suitable concentration to be used to "clean up" a papermaking or paperboard making process. Figure 1 herewith shows a preferable embodiment of the sampler device and treatment/culturing device of the present invention. Picture A is a stainless steel lid. The lid with the pegs has been exposed to the process being monitored, and the pegs are accordingly stained with a biofilm. Picture B is a treatment device – a plate with 12 wells adapted to receive the peges when the lid is place on the plate. Lid A is normally designed to be complementary with commercially available 12-well polystyrene plates. Picture C is the culturing device, shown after a period of microbial growth and then removal of the liquid growth medium. Using this apparatus, it can be qualitatively visually assessed whether a particular anti-biofilm agent has or has not been efficacious with respect to micro-organisms present in the papermaking or paperboard making process of interest. When observing each recession of the device, the presence of a biofilm adhered on the walls of the recession indicates that anti-biofilm agent to which said protrusion has been subjected is not sufficient in the concentration used. The

absence of a biofilm adhered on the walls of the recession shows an anti-biofilm agent in sufficient concentration to be applied to clear the process from said microbes. No identification of the microbes, no colony counting, no microscopy, etc., is necessary to select an efficient composition for cleaning up the process (although some or all of these procedures could be used, if desired to provide further information).

DRAWINGS. A replacement drawing sheet is submitted herewith.

OBJECTION. Objection was raised to claim 7. Claim 7 has been amended as kindly suggested by the Examiner.

FAILURE TO DEFINE. Claims 1-10 were rejected under the second paragraph of 35 U.S.C. 112 as failing to define the invention properly. Office Action, pages 4-5. The Examiner objected to the preamble of claim 1. The preamble of claim 1 has been clarified. The Examiner objected to certain language in claim 3 ("preferable," "such as," "e.g.," etc.). That language has been removed from claim 3. The dependency of claim 8 has been corrected as kindly suggested by the Examiner. The antecedent basis problem in claim 10 has been addressed by amendment of claim 1. It is respectfully submitted that the foregoing amendments overcome this ground of rejection.

PRIOR ART. Claims 1-10 were rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,349,874 (Schapira) in view of US 2001/0049975 A1 (Ceri). Office Action, pages 6-8. The rejection is respectfully traversed.

Shapira and Ceri are typical of prior art publications describing different surfaces on which to grow biofilm, or on different ways to set studs having biofoulable test surfaces in a process (Shapira), or how to multiply the number of replicates (Ceri). All such publications share the same key features:

BIOFILM > EXPOSE TO BIOCIDE > REMOVE BIOFILM > MEASURE WHAT YOU MANAGED TO REMOVE

That is, they A) grow biofilm (in a lab or in an actual industrial process), then B) expose to biocide, then C) quantify the response by removing the biofilm and measuring by agar plate cultivations that how many microbes survived the biocide treatment. With regard to this last step, Schapira at end of his claim 1 refers to collecting and analyzing the bacteria from the test surfaces of a stud. All analyses in Schapira were done by scraping, homogenizing, diluting, and then cultivating on agar plates, with results expressed as CFU/cm. One difficulty with this approach is that in this way one cannot be sure that all sessile cells were really detached from the steel stud. One cannot be sure that all cells were detached from each other when making the dilution series, and one does not know if one colony on an agar plate is truly reflecting the amount of single cells in the dilution series and is not originating from a huge agglomerate of cells due to poor homogenization. Ceri likewise quantified all sessile cells based on detaching and cultivating (results are CFU's).

In Applicants' invention, a key novelty is the detection step.

BIOFILM > EXPOSE TO BIOCIDE > OFFER NEW STERILE MEDIA AND NEW SURFACE AREA > BIOFILM CELLS THAT SURVIVED WILL PRODUCE A NEW BIOFILM

Thus, Applicants rely on the cells themselves to help in the detection! This is an inventive strategy in detection, which is not suggested by Schapira or Ceri. Applicants' process thus avoids all of the above-mentioned problems related to scraping and homogenizing, when (after the biocide exposure) they offer new sterile media and new clean surfaces for the biofilms. If the sessile cells survived the biocide treatment, those cells eagerly reproduce a new biofilm on the new surface in the last step of Applicants' test. This novel method provides the benefit that it is unnecessary to debate if all the cells were scraped off or not. Alone or in combination, the two references upon which the rejection relies – Shapira and Ceri – do not teach or suggest this inventive step.

Unlike the prior art, the present novel detection method is based on the naturalistic behavior of biofilms. That is, the microbe cells which were in the biofilm and survived the biocide treatment are actively colonizing new surfaces (offered to them in the new plate with recessions), and the colonization rate is detected simply and easily based on staining. The

present method is easier and faster than prior art methods, inasmuch as there is no need to actively detach the cells from the sampler surface in any of the steps of the present invention. During Applicants' steps (c) and (d), the biofilm cells are actively colonizing the new surfaces, which clearly differentiates Applicants' invention over the prior art.

Withdrawal of the rejection of record is in order and is earnestly solicited.

Contact information

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Richard Gallagher (Registration No. 28,781) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Dated: March 26, 2010

Respectfully submitted,

By _____ Reg. No. 28,781

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